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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,388	03/12/2004	Igor Seleznev	0492611-0545/MIT9277/CON2	7295

24280 7590 03/24/2009

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EXAMINER	
WARTALOWICZ, PAUL A	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
03/24/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@choate.com

Office Action Summary	Application No.	Applicant(s)	
	10/799,388	SELEZNEV ET AL.	
	Examiner	Art Unit	
	PAUL A. WARTALOWICZ	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *40-47 and 49-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-47 and 49-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 40-47,49-62 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that claim 40 and the sole count cannot be properly written as an independent claim and as a claim dependent from the independent claim.

However, it appears that claim 40 and the sole count can be properly written as an independent claim and as a claim dependent from the independent claim. The process of claim 40 and the sole count are connected in at least one of design, operation , or effect. It is maintained that claim 40 and the sole count are drawn to a substantially similar method notwithstanding the deposition of a buffer layer before the superconducting layer as required by claim 40.

Applicant argues that the method covered by the sole count can be practiced without ever having to deposit a buffer layer and as a result the instant claims cannot be generic to and do not encompass the subject matter of the sole count.

However, the instant claims are rendered obvious over the sole count in view of Rupich. The sole count is not relied upon to teach depositing a buffer layer. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 40-47, 49-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over the sole lost count of Patent Interference No. 105,406 in view of Rupich et al. (US 2002/0056401).

The combination of the sole count and Rupich are generic to the subject matter of the sole count of Patent Interference No. 105,406, as to which a judgment adverse to the applicant has been rendered. A losing party is barred on the merits from seeking a claim that would have been anticipated or rendered obvious by the subject matter of the lost count. *In re Deckler*, 977 F.2d 1449, 24 USPQ2d 1448 (Fed. Cir. 1992); *Ex parte Tytgat*, 225 USPQ 907 (Bd. Pat. App. & Inter. 1985). See also MPEP §2308.03.

The subject matter of the lost count sets forth heat-treating said precursor film (comprising barium, fluorine, yttrium, and copper) at a temperature above about 700°C

in the presence of oxygen. One of ordinary skill in the art would recognize heat-treating would begin at room temperature and then rise to a temperature of above 700°C. As the temperature is increased to above 700°C, the precursor with oxygen present will be processed at a temperature of 400°C that will inherently form an oxyfluoride film wherein the temperature is subsequently raised to a temperature of above 700°C in order to convert the oxyfluoride precursor to the superconducting material. It is stated in the specification that this is believed to be the mechanism that occurs during treatment of the precursor with oxygen at elevated temperatures (2005/0014652 [0036] and 2004/0171494 [0035]). Therefore, the specification supports the assertion that the oxyfluoride precursor film is formed in the process of the subject matter of the lost count.

The subject matter of the lost count recites forming a film of crystalline $YBa_2Cu_3O_7$. The subject matter expressly states the ratio of the elements present in the superconducting material. One of ordinary skill in the art would recognize that it would have been obvious to one of ordinary skill in the art to provide the elements in substantially stoichiometric amounts to produce the compound as claimed.

It appears that the specification describes the formation of the intermediate metal oxyfluoride compound as the mechanism by which the invention, and therefore the lost count, is carried out.

It is well known in the art to remove HF from the surface as recognized throughout the specification of the lost count. Specifically, HF is evolved through the process of heating at the temperature (700°C) in the atmosphere (presence of oxygen

and water) set forth in the lost count. As HF is produced inherently in the subject matter of the lost count, one of ordinary skill in the art would recognize that the HF must be removed in order to produce high quality YBCO (paragraph 0055, 2005/0014652). Additionally, reduced HF content within the oxyfluoride film may favor c-axis texturing (paragraph 0058, 2005/0014652). Because the invention is directed to forming a crystalline YBCO at a low pressure, one of ordinary skill would recognize that it would at least be obvious to remove HF from the substrate in order to provide a high quality YBCO with the desired orientation. Additionally, the specification indicates that there are a number of ways to remove HF from the substrate surface including lowering the ambient pressure in the furnace. The subject matter of the lost count recites "heat-treating said precursor film at a temperature above 700°C in the presence of oxygen and water vapor at a sub-atmospheric pressure to form a crystalline structure" (emphasis added). Therefore, it is also maintained that HF is inherently removed at the conditions required by the subject matter of the lost count (presence of oxygen and water vapor, reduced pressure, 700°C).

The lost count additionally teaches the pressure in claims 41 and 42, the processing gas of claim 47, the film thickness of claims 50 and 51, the substrate of claims 55-58, and the that the superconductor is YBCO (claim 54).

Regarding claim 40 and 49, the lost count does not teach that a buffer layer deposited on the substrate before the superconducting layer is deposited.

However, Rupich teaches a method of making YBCO superconductors [0011] wherein a buffer layer (cerium oxide, inter alia) is deposited on a substrate before the

step of depositing the YBCO superconductor [0108] wherein the superconductor is formed by a oxyfluoride intermediate [0091].

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a buffer layer (cerium oxide, inter alia) is deposited on a substrate before the step of depositing the YBCO superconductor [0108] in the sole lost count in a substantially similar process of producing a superconductor [0091] as taught by Rupich.

Regarding claims 43-46, the subject matter of the sole count requires that the pressure is 0.3 Torr or less. It would be obvious to one of ordinary skill in the art that the values of 1, 0.1, 0.01, and 0.001 Torr are obvious in view of the disclosure of 0.3 Torr or less in the absence of unexpected results.

Regarding claims 59-62, the subject matter of the sole count requires that the critical current density is about 0.001 MA/cm^2 or greater. It would be obvious to one of ordinary skill in the art that the values of 0.45, 1, 2, 4 MA/cm^2 are obvious in view of the disclosure of about 0.001 MA/cm^2 or greater in the absence of unexpected results.

Regarding claims 52-53, the subject matter of the sole count requires that the thickness of the film is from 0.5-10 microns. It would be obvious to one of ordinary skill in the art that the values of 0.8 and 1.0 microns are obvious in view of the disclosure of 0.5-10 microns in the absence of unexpected results.

Regarding claim 57, the sole count fails to teach that the substrate is untextured, uniaxial textured, or biaxial textured.

Rupich, however, teaches teaches a method of making YBCO superconductors [0011] the surface of the substrate is biaxially textured for the purpose of improving the contact between the substrate and subsequently deposited material [0123].

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the surface of the substrate is biaxially textured in the sole lost count in order to improve the contact between the substrate and subsequently deposited material [0123] as taught by Rupich.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz
March 17, 2009

/Stanley Silverman/
Supervisory Patent Examiner, Art Unit 1793